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Multi-use occupancy projects are also more economical in terms of energy use. Energy consumption can be reduced by as much as one-half by programs sharing facilities with complementary energy demands, as in the schools whose air space rights are leased to apartment complex development, as in New York City. With staggered peaks in air conditioning demands, lower total plant capacity is permitted and greater operating efficiency by running equipment closer to capacity.

Many people feel that joint occupancy offers non-economic advantages as well as economic. In ideal projects, joint occupancy creates a new environment which established an integrated community with a broad range of community services. Pontiac, Michigan, with its Human Resources Center and Atlanta, Georgia, with the John F. Kennedy School and Community Center, are prototypic of the philosophical reasons for joint occupancy. These kinds of centers are administered by many different service agencies under unified and interrelated direction. This kind of resource center, some argue, should serve as a "cradle to grave" educational process serving as a catalyst for the creation of a stable residential neighborhood. It has been asserted, also, that shared facilities result in improved voting frequency, bond issue approval, decreased juvenile delinquency and vandalism as well as a generally improved attitude toward education. Thus, philosophically, the human resource center would serve as a

## JOINT OCCUPANCY

Charlene Ellison Higham

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Joint occupancy is the concept which involves combining schools with apartment dwellings, commercial spaces, or community services and offices. Many people feel that joint occupancy, known also as shared facilities or multiple-use buildings, has both economic and philosophical advantages. Although the concept presents some complex legal problems in many states, administrators generally agree that joint occupancy is attractive because it can provide needed schools, reduce the financial impact of school construction, provide flexibility in years of uncertain enrollment, and, in the public-private mix, keep used land on city tax rolls.

Joint occupancy may be of several mixes; public-public, when a school is combined with other public services, public-private, where the air rights of the school are sold or leased for commercial development, or private-private, where a private school shares facilities or sites with commercial space. Design varies substantially but the facility is jointly designed, constructed and operated by the participating agencies.

Joint occupancy is a concept which has been reactivated and extended during the past decade. To say that multi-use of facilities, a term also employed to categorize shared facilities, is a new idea would be inaccurate. Past civilizations educated their youth in the community at large in non-specialized environments; the market, the home, farms, churches, and, later, in in-

dustrial settings. Only recently, due to child labor laws, compulsory education, and social affluence, has learning become specialized and conducted away from the activities of the adult society.

The first models, referred to as first-generation community/school projects, came with the establishment of the Community School Program in Flint, Michigan with the financial backing of Charles Mott in 1935. At present over 700 U. S. school districts have programs which open schools to the community after hours and on weekends. Second generation projects were characterized by the sharing of recreational facilities, by nature the least "disruptive" to the purists concept of educational activities. Third generation projects involving joint occupancy emerged as a result of several factors, a declining school-age population, concerns over energy conservation and strained maintenance funding. Public interest began to seek a broader joint-usage concept, which would relate the schools and other non-conflicting activities. It was the Human Resources Center, later renamed the Dana P. Whitmer Center, of Pontiac, Michigan which finally ushered in the third generation of community/schools. What has emerged in this and other similar projects is a pattern of spaces under one roof which dealt with social and medical support services as well as educational and recreational. Funding sources for these projects include state and local monies as well as federal HUD and HEW funding.

Within this concept is found a total disintegration of rigid time and usage patterns for building spaces, as well as a corres-

ponding broadening of the age and socio-ethnic groups using the facilities. Various combinations of joint occupancy create, to a greater or lesser degree, depending upon the number of participating agencies, environments that are, in effect small cities or towns that could almost act as independent communities.

Advantages to joint occupancy seem to divide themselves into two broad categories. The primary impetus is economic. High construction costs, shortage of urban sites, high interest rates and tight credit, taxpayer reluctance to see land removed from the tax rolls are all factors. A rapidly increasing consideration is that of energy consumption and conservation, adding to the favor with which joint occupancy is being viewed. Although cities may be in trouble, more and more urban space is needed for more and more things. As competition and costs increase, it has become increasingly difficult to find city sites that can be put aside for educational purposes alone. Urban schools needing expanding facilities find space and funds in short supply.

Compounding the shortage of land is a dwindling property tax base. In the city of Boston for example, about 50% of the available land is already occupied by public or tax-exempt buildings. In order to survive, cities must increase, or at least maintain, their tax base of revenue producing properties. The ideal arrangement is to include on the school site, enough tax-paying commercial space to carry the cost of the debt service on the school. Properly planned, joint occupancy can provide a way of creating new schools or replacement schools without raising the tax rate. Shared space and facilities make for more efficient and economical use of space. Public-public financing

partnerships insure more value for the money spent than do the traditional building programs in which expensive services and facilities are duplicated.

Multi-use occupancy projects are also more economical in terms of energy use. Energy consumption can be reduced by as much as one-half by programs sharing facilities with complementary energy demands, as in the schools whose air space rights are leased to apartment complex development, as in New York City. With staggered peaks in air conditioning demands, lower total plant capacity is permitted and greater operating efficiency by running equipment closer to capacity.

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clearinghouse for human/community services of which schools are only one part.

Forecasting the future of joint occupancy is only conjecture. However, it is generally agreed that present efforts at multi-use or shared facilities are not the final evolution of the social/educational concept. Europe, with its more tolerant view of heavily socialized government financing, is in the vanguard of the joint occupancy movement. However, we in the United States have arrived at the point where isolated approaches to problem-solving are no longer economically feasible. The Housing and Community Development Act of 1974 enacted federal assistance in support of community development activities. In another bill, the Education Amendments of 1974, further governmental commitment is made to the community/school concept. Its intent is clearly directive toward future educational/community planning. Hopefully, the end of education in isolation, replete with student age stratification, is at an end as joint occupancy comes of age.

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Joint occupancy, known also as shared facilities or multiple use buildings, involves combining schools with apartment dwellings, commercial space, or community services and offices. Recommended as an approach to a solution of both public and private urban school needs, the design is usually composed of a single structure, or a complex, jointly designed, constructed and operated by the participating parties.

A school district can build the facility and lease it to other agencies, using the income to offset building and operating expenses. The district can ask the other agency to build its facility in conjunction with a new school. A third option is, the sharing of costs on the expected pro rata usage. Joint occupancy receives attention in other EFL publications cited in the report.

The New York Educational Construction Fund, created in 1966, was designed to carry out a program of public school multiple use structures. E.C.F., a self-sustaining corporation, uses modern design and construction techniques which permits schools to be open more hours and become focal points of community life. P. S. 126, the first project to be completed, shares its site with a twenty-five story apartment complex. Twenty-three similar facilities, costing approximately \$180 million for the schools and \$380 million for the commercial spaces, are



planned.

Lieberman's 1972 report focuses on educational facility options and criteria for shared facility schools. Such criteria include educational programs based on open space concepts, a 6,000 square foot floor space minimum, separate access for school, play space usable after hours, and year-round air conditioning. An early example is a Queens, New York school located on the ground floor of a public housing project. Major difficulties, pertain to administration and maintenance services caused by the fact that spaces were not originally designed for school use.

Higher education is also exploring facility sharing, intended to reduce duplication of effort and facilities. In Denver, the Auraria Higher Education Center combines three public institutes of higher education; almost every building will be shared. An unsuccessful sharing attempt in Baltimore is cited. Bureaucratic inertia and laws governing financing of public buildings prevented construction of the proposed campus.



Brooks, Kenneth W. "Facility Alternatives: A Synopsis of Ideas." C.E.F.P. Journal, vol. 10 (June, 1972), pp. 8-11.

Some facility alternatives are (1) rededication of obsolete and underused spaces, (2) use of non-school facilities, (3) delivery systems not requiring the use of traditional schools, (4) extended day schedules, (5) mobile spaces, (6) use of abandoned facilities, (7) organizational modifications, (8) new ways of financing and owning (9) construction engineering and architectural techniques, and (10) other alternatives such as joint occupancy and air rights.

Joint occupancy indirectly enters into many of the enumerated alternatives. Also mentioned separately, joint occupancy school programs are now operating successfully in association with recreation centers, offices and apartments. In some cases the occupancy can be designed to complement each occupant. In other cases there is no formal association.

"Building Economical Air Rights Plan Combines Apartment With Elementary School." American School And University, vol. 45 (Sept., 1972), pp. 50-52.

The nation's first joint occupancy project combining an apartment house with a public school reached completion in New York City in September of 1971. P. S. 126, a three story elementary school, shares its site with a four hundred family, twenty-five story apartment building. The apartment complex was built on the "air rights" of the four million dollar school. Twenty-three other shared site projects were, in 1972, under construction or in the planning stage in New York City.

According to the article, a developer was selected who agreed to build the school in order to benefit from the ownership of the commercial development. He must finance the non-school portion independently but is relieved of the financial responsibility of acquiring land. The "air rights" concept includes both the air over the building and over the adjacent grounds.

Clinicy, Evans. Joint Occupancy: Profiles of Significant Schools. New York: E. F. L., 1970. ED 046 079

High construction costs, high interest rates and voter reluctance to see property removed from tax rolls are compelling school administrators to look at the concept known variously as joint occupancy, mixed use, or multiple-use of land and buildings. The concept includes combining schools with housing, commercial space and civic agencies. Various combinations create environments that are in effect independent communities that are still linked to their surrounding cities. The joint occupancy concept may take the public-public, public-private, or private-private format; the public-private mix still being the less common.

Reasons for developing and extending the idea of joint occupancy are mostly related to economics. However, whether the reasons are economic or philosophical, in almost all cases the solution is the combination of uses, the stacking of different spaces and functions, the use of air rights over small pieces of ground space.

Joint occupancy may take the simplest form, that of two or more parties sharing a site. Shared sites imply separate buildings that may or may not be related in programs but invariably use the income from one to help finance the other. Such a program is the Friends Select School in Philadelphia, Pennsylvania where the private school leased one of its three urban acres for commercial development. The financial income

from the lease more than covers the cost of debt retirement for the new school facility.

Joint occupancy can mean shared buildings, as in the case of projects designed by the New York City Educational Construction Fund. Twenty-one projects of the shared nature are in planning and two in construction. Six of these projects are described and pictured in the report.

Joint occupancy can also link schools with the urban environment structurally and functionally. The City of Pontiac, Michigan has combined schooling with other forms of community services to create a Human Resources Center, after overcoming seemingly insurmountable legal and financial policy problems. In this significant project, Pontiac has been able to attempt a radically different kind of environment. Slightly different versions of the H.R.C. also appear in Boston, Massachusetts (Quincy School Complex) and Chicago, Illinois (Crake-South Commons School).

Joint occupancy ventures have problems to overcome in planning for collaboration, in detailing the leadership role, and in devising legal mechanisms to make joint occupancy possible. However, the concept offers great benefits and schools that can pay for themselves.

Decker, Larry E. and Pass, Barbara H. "Community Human Resource Centers." Community Education Journal, vol. 4 (Nov.-Dec., 1974), pp. 20-22.

This report fulfills a philosophical case for the community human resource center which is termed a "one stop supermarket for a neighborhood serving as a clearinghouse for numerous human and community services." This resource center, it is asserted, provides a "cradle to grave" educational process which serves as a catalyst for the creation of a stable residential neighborhood in which people can find a "good life." Decker and Pass feel that in the consolidation of efforts and resources of school and community that there will be reduced competition for the same public dollar for facilities. They also state that shared facilities result in improved voting frequency, bond issue approval, decreased juvenile crime and public vandalism. There is also a generally improved attitude toward education.

The authors also discuss financial considerations in sharing the action, governance and policy making and examples of co-operative operation.

Educational Facilities Laboratory. The Economy of Energy Conservation in Educational Facilities. New York: E.F.L., 1973. pp. 50-52.

Energy conservation adds another advantage to multi-use buildings, especially for school and residential apartments. Incorporating a school and residential apartment complex in a single structure affords opportunity to reduce the overall surface area-volume ration below that of two separate structures. With the staggered peaks in air conditioning demand, the school and apartment have complementary demands. Multi-use projects offer an opportunity for schools to exploit the potential economy of total energy. Needed for total energy economy is complementary uses of energy, as in a school-shopping center (Fairfax County, Virginia School District study), where the center complex would have two turbines designed to operate on either kerosene or diesel fuel, altered as supplies and prices vary.

Educational Facilities Laboratory. Guide To Alternatives For Financing School Buildings. New York: E.F.L., 1971. pp. 11-13.

A common, shared facility can be built by the school and leased to other using agencies. Lease incomes can be used to offset capital and operating expenses. While not benefiting the school district financially, it does benefit the city by avoiding the cost of duplicate facilities.

Another sharing method is that the school district can ask the second agency to build its new facility in conjunction with a new school. This method reduces the capital cost of a new school district. Still another option is to share first costs based on pro rata usage. This method involves developing a cost-sharing formula. First cost includes construction cost, related fees, and interest paid. A second method is for one agency to agree to finance the total facility and rent or lease to the other agency on a usage basis. A third way is for one agency to build the facility and simply give the other agency the right to use it, avoiding the cost of duplicate facilities.



Educational Facilities Laboratory. Schools: More Space/Less Money. New York: E.F.L., 1971. pp. 30-39. ED 060 529.

Under conventional methods of building schools, the entire cost of a school and the interest on its bonds must be carried by local and state taxes. In addition, the land used is removed permanently from the tax rolls. Joint occupancy between schools and taxpaying commercial concerns can allow the school to "pay for itself" from the expanded tax base. Although joint occupancy does not necessarily reduce the cost of construction, it can provide a way of creating new schools without raising the tax rate.

The New York City Educational Construction Fund, a state authority, was created in 1966 for planning and constructing joint occupancy projects in New York City. The Fund is empowered to issue bonds, plan projects, select developers, and pay back debt service on bonds out of income from private space. When bonds are retired, income from the commercial space will revert to the city as normal tax-base revenue.

Partnerships are not limited to private-sector cooperation nor to the leasing of school land for commercial development, as in the Friends Select School (Philadelphia) project. Many examples of public-public joint occupancy exist. A package of community services may be provided; schools, libraries, day care centers, health facilities, community colleges, welfare and social agencies, and cultural and recreational facilities. All these make natural facility partners for schools.

A new high school in Hodges Manor, a suburb of Portsmouth, Virginia, will include a joint use school-public library, as a branch library. The entire school is to be used as a community center for all age groups and is to include a planetarium, field house, and theater.

The report also explores the South Arsenal Neighborhood Development Corporation (SAND), a community group operating in a low-income black and Puerto Rican section of downtown Hartford, Connecticut. This project and the Welfare Island project in New York's East River, represents true community-educational integration, gaining at the same time multiple economies by combining building systems, open space, partners, and joint occupancy.

"The Energy Advisor. . . Planning New Schools." Modern Schools,  
September, 1974, pp. 12-13.

In a new building, with a clearly stated goal of energy conservation and life-cycle costing in the architectural program, a school building's energy consumption can be reduced by up to fifty per cent compared with a conventionally designed building. Multi-use occupancy is one of eight methods of energy conservation discussed in the article.

Multi-use is a design technique of increasing relevance. Increasing land costs coupled with short supply, inspired the first multi-use school-office and school-apartment structures built during the mid-1960s. Multi-use offers an excellent opportunity to reduce the overall surface area-volume ratio below that of two separate structures. With staggered peaks in air conditioning demand, the school and apartment have complementary energy demands, permitting lower total plant capacity and greater operating efficiency of running equipment closer to capacity.

Also discussed as energy conservation means are building shape, total energy, wall shading, automatic controls and improved mechanical and electrical design.

Graves, Ben E. "Out Goes the Textbook For School Planning."  
A.I.A. Journal, vol. 60 (Oct., 1973), pp. 18-25.

Educational facility planning is an active, exciting area which offers tremendous challenge to the design professional. Some examples of what's happening are: (1) combining space for an educational center with facilities for other community services such as library, recreation, health and the elderly, (2) "mini modernizations" which allow for architecturally supervised incremental remodeling for alternative approaches to traditional buildings, (3) a career center to offer a full-range of vocational programs shared by students from more than one program, (4) recreational facilities, (5) special facilities which use no longer needed school space for instituting programs for which there was previously no space.

The article contains numerous photographs depicting the creative use of old buildings for innovative programs. There is also a diagram of the Tacoma, Washington multiactivity center which nestles under an air supported membrane, and a detailed lay out of the John F. Kennedy School and Community Center in Atlanta, Georgia.

Green, Alan C. "Look Who's Under the Same Roof Now." A.I.A. Journal, vol. 60 (Oct., 1973); pp. 26-31.

This well-illustrated article looks at the following types of building arrangements that seem to be emerging: (1) using excess school and college space for community purposes, (2) building extra space in order to provide room for other services, (3) providing for education and social services through co-operative building ventures, (4) joining schools and housing or commercial enterprises, (4) joining with educational partners, (5) planning for students and the community.

It is felt that the greatest challenge lies in the environmental design role to be played by the architect. It is important not to get so caught up in the financial and political planning, in the preparation of treaties and involvement of all constituencies that one fails in the sensitive problems of architecture. One of the principle reasons for sharing facilities is that it will be possible to have more effective ways for delivering educational and social services, along with a melding of age and interest groups. Much of this advantage, according to the report, can be lost by large, complicated complexes insensitive to human scale, difficult to comprehend and formidable to users.

Kelsey, F. Lamar. "Sports Facilities: The New Breed." Phi Delta Kappan, vol. 56 (Jan., 1975), pp. 321-325.

Until recently the gymnasium was little more than a barn with a highly polished, fragile floor. Mr. Kelsey, a Colorado Springs, Colorado architect, has divided the brief article into eleven sections, each accompanied by an illustration designed to "turn on the switch of people's imagination." All of the ideas are possible, and the facilities depicted in the sketches are designed and presently under construction.

It is suggested that recent development of new sets of forces has demanded the ouster of the "basketball barn" of the past. Far more flexible and useful facilities must be designed in order to accommodate the needs of girls sports, lifetime sports, intramural sports, and community use.

While the report does not provide many specific details, it does suggest ways for sharing fiscal responsibility for school/community programs. Examples given are from presently operating facilities and programs in the cities of Durango and Colorado Springs, Colorado.

McCoy, William J. "The Community/School/Center; Resources and Economies Make It a Must." Community Education Journal, vol. 4 (Nov.-Dec., 1974), pp. 8-10.

There is a great need for community services interrelationships which demands adequate communication and coordination. Sharing of physical facilities in and of itself cannot overcome the problems but proximity makes isolation much more difficult. Joint occupancy makes it easier to centralize, control, coordinate and manage various services.

The article contains suggestions as to how communities can pool available money to make shared facilities, staffs and programs happen. The combining of programs frequently provides opportunity for funds from programs not normally used for school construction, urban renewal, open space planning and neighborhood facilities. Used as a specific example is a comprehensive community school project in Springfield, Massachusetts. Listed are the participating local, state, and federal agencies for this particular project, providing guidance for others considering a similar program.



Passantino, Richard J.. "Community/School Facilities: The Schoolhouse of the Future." Phi Delta Kappan, vol. 56 (Jan., 1975), pp. 306-09.

Mr. Passantino, a Washington, D. C. architect specializing in educational facilities, shows how the community education movement has begun to affect school housing in the United States and Europe. It is suggested that educators have begun the re-activation of some very old techniques, that of educating their youth within the community at large in nonspecialized environments.

School buildings and sites have been used for community recreation since the first decade of the century. However, the early landmark in the shared facilities concept was the establishment of the Community School in Flint, Michigan in 1935. At present there are over seven hundred school districts with programs similar to the Flint model.

The report cites several examples of complex facilities sharing and provides diagrams for two recent examples, the Dana P. Whitmer Center in Pontiac, Michigan, and the John F. Kennedy School and Community Center in Atlanta, Georgia.

The "total human resources network" will need a philosophical adjustment that, the author feels, will be necessary to overcome the "isolated approaches to problem solveing." There is some mention of recent federal legislation that may be a "beacon" for future educational planning.

Ringers, Joe. "Community Schools." CEFP Journal, vol. 12  
(July-Aug., 1974), pp. 8-9.

Despite the fact that the school is frequently the largest public structure and requires the largest share of taxes in a community, (1) the school year is only one-half of the calendar, (2) the school day is only one-third of the clock, (3) the school pupils are only one-fifth of the population. It is concluded that, with careful planning and slight additional cost, a school can be a community facility and deliver a composite of essential services to a broader range of citizens over a greater time period.

Listed are five essential elements for the success of inter-agency projects, (1) top level commitment, (2) a clear written understanding of the goals and objectives, (3) easy channels for two way oral communication, (4) a "why not" attitude instead of a "why" or "who", (5) periodic reassessment of the project and its operative procedures.

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